15. A method for depositing wear-resistant coatings on metal surfaces of machine components and articles, said method comprising the following steps:

(i) providing an ion-plasma deposition chamber;

(ii) locating said machine components or articles being treated inside said ion-plasma deposition chamber as an anode;

(iii) locating in said chamber cathodes made from the Group IVA - VIA metals and/or alloys thereof;

(iv) establishing in said chamber a gas atmosphere wherein the gas is selected from the group consisting of inert or non-inert gases and mixtures thereof;

(v) effecting, whenever necessary, ion cleaning of surfaces of machine components or articles;

(vi) effecting selective ion-plasma deposition of microlayers of a coating, wherein at least one microlayer (a) consists of said metals, mixtures thereof or substitution alloys, a second microlayer (b) consists of solutions of nonmetallic atoms of nitrogen, carbon, and boron in said metals, and a third microlayer (c) consists of chemical compounds of said metals with nonmetals in the form of nitrides, carbides, borides and mixtures thereof;

(vii) subjecting one or more of said microlayers to treatment by implanting thereinto high energy non-metallic ions;

(viii) cooling and unloading said machine components or articles from said chamber.

16. A method as defined in claim 15, CHARACTERIZED in that after having been cooled and unloaded said machine components or articles are subjected to vibromechanical treatment with micro-pellets.

17. A method as defined in claim 15, wherein said machine components or articles are made from titanium, titanium alloys, steels or nickel-based alloys.

18. A method as defined in claim 15, wherein said cathodes are selected from titanium alloys, steels or nickel-based alloys which after having been cooled form a composition similar to the base material of a machine component or article.

19. A method as defined in claim 15,wherein said plurality of microlayers is selected from the numbers 3-500, and said microlayers (a), (b), (c) alternate successively.

20. A method as defined in claim 18, wherein the thickness values of said microlayers (a), (b), (c) are in a ratio of 1.0:2.0:2.5.

21. A method as defined in claim 15, comprising preliminary deposition of a microlayer consisting of scandium, yttrium or other rare earth metal having a thickness of 0.02 to 0.08 micron before step (vi).

22. A method as defined in claim 15, wherein the reaction gas is nitrogen, acetylene, methane or diborane.

23. A method as defined in claim 15, wherein ion deposition is effected with ions of argon, or nitrogen, or carbon, or boron at an accelerating voltage of 10-50 kV, at a radiation dose of 1014 - 1018 ion/sq.cm and an energy of ions of 5x103 - 1x105 eV.

24. A method as defined in claim 15, wherein said ion-plasma deposition step (vi) comprises the steps of depositing:

(a) a scandium microlayer in argon atmosphere;

(b) a titanium microlayer in argon atmosphere;

(c) a microlayer comprising a solid solution of implanted nitrogen ions in titanium in an atmosphere comprising a mixture of nitrogen and argon;

(d) a microlayer comprising titanium nitride implanted with nitrogen ions in nitrogen atmosphere.

(e) a zirconium microlayer in argon atmosphere;

(f) a microlayer comprising a solid solution of implanted nitrogen ions in zirconium in an atmosphere comprising a mixture of nitrogen and argon;

(g) a microlayer comprising zirconium nitride implanted with nitrogen ions in nitrogen atmosphere; and

(h) the step of repeating said steps (b-g) to provide the required plurality of microlayers.

25. A method as defined in claim 15, wherein said deposition step (vi) comprises depositing:

(a) a first microlayer comprising alloys of titanium and zirconium in an inert gas atmosphere;

(b) a microlayer comprising alloys of titanium and zirconium implanted with nitrogen ions in an atmosphere of a mixture of said inert gas and nitrogen;

(c) a microlayer comprising titanium and zirconium nitrides implanted with nitrogen ions in nitrogen atmosphere;

(d) repeating said steps (a) - (c) to provide the required plurality of microlayers;

(e) ion deposition with argon ions of the deposited multilayer coating.

26. A method as defined in claim 25, wherein said deposition step (vi) comprising depositing:

(a) a microlayer of titanium and zirconium alloys in an inert gas;

(b) alloys of titanium and zirconium with boron in a mixture of an inert gas with diborane;

(c) titanium and zirconium borides implanted with boron;

(d) repeating said steps (a) - (b) to provide the required plurality of microlayers;

(e) ion implantation with argon the multilayer coating deposited.

27. A wear-resistant coating of metal surfaces, comprising deposited on said surfaces by ion-plasma deposition process at least one microlayer consisting of Group IVA - VIA metals, their mixture or substitution alloys, at least one microlayer consisting of solutions of nonmetal atoms of nitrogen, carbon, boron in said metals, at least one microlayer of chemical compounds of said metals with nonmetals in the form of nitrides, carbides, borides and mixtures thereof, implanted in at least one of any of said microlayers high-energy nonmetal ions selected from the group consisting of argon, nitrogen, carbon or boron ions.

28. Machine components and articles deposited by the method as claimed in claim 15.

29. Machine components and articles having a coating according to claim 27.